

Title (en)  
ALLOY WIRE, PREPARATION METHOD THEREFOR AND USE THEREOF

Title (de)  
LEGIERUNGSDRAHT, HERSTELLUNGSVERFAHREN DAFÜR UND VERWENDUNG DAVON

Title (fr)  
FIL EN ALLIAGE, PROCÉDÉ DE PRÉPARATION ASSOCIÉ ET SON UTILISATION CORRESPONDANTE

Publication  
**EP 4212641 A4 20240417 (EN)**

Application  
**EP 21920595 A 20210827**

Priority  
• CN 202110077980 A 20210120  
• CN 2021114939 W 20210827

Abstract (en)  
[origin: EP4212642A1] The present disclosure relates to the technical field of tungsten alloy materials, and in particular to an alloy wire rod and a preparation method and application thereof. The alloy wire rod is made of a tungsten alloy, and the tungsten alloy contains tungsten and an oxide of cerium. The alloy wire rod has a wire diameter of equal to or less than 100 µm; and the alloy wire rod has a tensile strength of greater than 3,800 MPa. The wire diameter of the alloy wire rod is equal to or less than 60 µm; the diameter of a push-pull core wire of the alloy wire rod is less than 350 µm; the elastic ultimate strength of the alloy wire rod is greater than 2,500 MPa; and the tensile strength of the alloy wire is greater than 4,200 MPa. In the present disclosure, the alloy wire rod having ultra-high strength and good toughness is obtained by doping an oxide of cerium.

IPC 8 full level  
**C22C 27/04** (2006.01); **B22F 1/145** (2022.01); **B22F 1/16** (2022.01); **B22F 5/12** (2006.01); **B23D 61/18** (2006.01); **B28D 5/04** (2006.01); **C22C 1/05** (2023.01); **C22C 32/00** (2006.01); **C22F 1/18** (2006.01); **D02G 3/12** (2006.01); **D07B 1/00** (2006.01); **B22F 7/06** (2006.01)

CPC (source: CN EP US)  
**B22F 1/145** (2022.01 - EP); **B22F 1/16** (2022.01 - EP); **B22F 5/12** (2013.01 - CN EP US); **B23D 61/185** (2013.01 - EP US); **B28D 5/045** (2013.01 - CN US); **C21D 9/525** (2013.01 - US); **C22C 1/05** (2013.01 - CN EP); **C22C 1/057** (2023.01 - US); **C22C 1/059** (2023.01 - US); **C22C 27/04** (2013.01 - CN EP US); **C22C 32/0031** (2013.01 - CN EP); **C22F 1/18** (2013.01 - EP); **D03D 1/0035** (2013.01 - US); **D03D 15/67** (2021.01 - US); **B22F 2007/066** (2013.01 - EP); **B22F 2301/20** (2013.01 - US); **B22F 2302/25** (2013.01 - US); **B22F 2998/10** (2013.01 - EP); **D10B 2101/20** (2013.01 - US); **D10B 2501/041** (2013.01 - US)

C-Set (source: EP)  
**B22F 2998/10** + **C22C 1/0458** + **C22C 1/057** + **B22F 2007/066** + **B22F 9/24** + **B22F 3/12** + **B22F 3/17** + **B22F 5/12**

Citation (search report)  
• [Y] WO 2020137255 A1 20200702 - PANASONIC IP MAN CO LTD [JP]  
• [Y] EP 0765949 A1 19970402 - OSRAM SYLVANIA INC [US]  
• [Y] JP 2011125961 A 20110630 - ALLIED MATERIAL CORP  
• See also references of WO 2022156216A1

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

Designated validation state (EPC)  
KH MA MD TN

DOCDB simple family (publication)  
**EP 4212642 A1 20230719**; **EP 4212642 A4 20240417**; CN 113186438 A 20210730; CN 113186438 B 20220913; CN 113186439 A 20210730; CN 113186439 B 20220913; CN 113215463 A 20210806; CN 113215463 B 20220913; CN 113234980 A 20210810; CN 113234980 B 20220913; CN 114231813 A 20220325; CN 114231813 B 20231124; CN 114250395 A 20220329; CN 114250395 B 20231124; CN 216947148 U 20220712; EP 4212641 A1 20230719; EP 4212641 A4 20240417; JP 2022112015 A 20220801; JP 2023551646 A 20231212; JP 7419412 B2 20240122; TW 202229576 A 20220801; TW 202229583 A 20220801; US 2023374634 A1 20231123; US 2023407441 A1 20231221; WO 2022156216 A1 20220728; WO 2022156437 A1 20220728; ZA 202303969 B 20230531; ZA 202304296 B 20230531

DOCDB simple family (application)  
**EP 21920811 A 20211215**; CN 202110482229 A 20210430; CN 202110686165 A 20210621; CN 202110687610 A 20210621; CN 202110744773 A 20210701; CN 2021114939 W 20210827; CN 2021138514 W 20211215; CN 202121382055 U 20210621; CN 202210054204 A 20220118; CN 202210054232 A 20220118; EP 21920595 A 20210827; JP 2022006095 A 20220119; JP 2023528201 A 20210827; TW 110124907 A 20210707; TW 110147597 A 20211217; US 202118248592 A 20210827; US 202118248603 A 20211215; ZA 202303969 A 20230329; ZA 202304296 A 20230411